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A new record of *Phytolacca acinosa* (Phytolaccaceae) in Poland

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Abstract: In this paper, a new distribution record of *Phytolacca acinosa* in Poland is presented. It was found on 30 September 2018 in Kraków, southern Poland, growing in a hedge of *Ligustrum vulgare*. Currently, it should be treated as a casual alien species in the Polish flora. The updated map of the distribution of *P. acinosa* in Poland is provided using the ATPOL cartogram method.

Key words: alien species, biological recording, geographical distribution, *Phytolacca*.

Introduction

The genus *Phytolacca* L. (Phytolaccaceae) comprises about 25 species of perennial herbs, shrubs, and trees and is distributed in North America, Central America, South America, Eurasia, Africa, Pacific Islands (Hawaii), and Australia (Nienaber & Thieret 2003). *Phytolacca acinosa* Roxb., a perennial herb, is native to Eastern and Southeastern Asia, including Korea, Japan, China, India, Bhutan, Myanmar, and Vietnam. It occurs in forests, on forest margins and roadsides, at the elevation of 500-3400 m, and is also cultivated in domestic gardens and used as a medicinal plant (Dequan & Larsen 2003). Moreover, it was introduced to Europe and North America as an ornamental, vegetable or herbal plant (Nienaber & Thieret 2003, Wyrzykiewicz-Raszewska 2009, Zieliński *et al.* 2012, Martan & Šoštarić 2016, Randall 2017 and literature cited therein). The naturalization of *P. acinosa* has been documented in anthropogenic habitats in the United Kingdom, the Netherlands, Belgium, Denmark, Germany, Switzerland, Austria, the Czech Republic, Slovakia, Hungary, Romania, Sweden, and Russia (Verloove 2010, Uotila 2011, Zieliński *et al.* 2012, Randall 2017 and literature cited therein).

In Poland, *P. acinosa* is found in gardens as an ornamental plant (Wyrzykiewicz-Raszewska 2009 and literature cited therein). In 2006, it was recorded from the roadside thickets on the outskirts of the city of Tarnów, Lesser Poland Province (Wyrzykiewicz-Raszewska 2009). However, the naturalization of *P. acinosa* in the Polish flora has not been substantiated so far (Wyrzykiewicz-Raszewska 2009, Tokarska-Guzik *et al.* 2012). In this paper, a new record of the spontaneous occurrence of *P. acinosa* in Poland is presented and its geographical-historical status is reevaluated.

Material and methods

Identification of *Phytolacca acinosa* was based on a morphological description given by Nienaber & Thieret (2003) and Wyrzykiewicz-Raszewska (2009). Taxonomic treatment of *P. acinosa* followed Verloove (2012). The definitions of alien species followed Pyšek *et al.* (2004). Distribution map was prepared using the ATPOL cartogram method (Zając 1978). Voucher specimens of *P acinosa* are deposited in the Herbarium of the Institute of Botany of the Jagiellonian University in Kraków (KRA).

Results and discussion

Phytolacca acinosa was found on 30 September 2018 near the Stanisław Wyspiański Park and Władysław Łokietek Street in the city of Kraków, Lesser Poland Province, southern Poland (GPS coordinates: 50° 05.216′ N / 19° 55.372′ E; altitude: 224 m a.s.l.), growing in a hedge of

Ligustrum vulgare L. The new locality is situated within the unit DF69 of the ATPOL cartogram grid (Fig. 1). The population of *P. acinosa* consisted of 15 individuals, including 6 generative and 9 vegetative ones. It was associated with ruderal and segetal plants such as *Atriplex patula* L., *Ballota nigra* L., *Chelidonium majus* L., *Chenopodium album* L., *Poa annua* L., *Polygonum aviculare* L., *Senecio vulgaris* L., *Setaria pumila* (Poir.) Roem. & Schult., *Sonchus arvensis* L., *Stellaria media* (L.) Vill., *Urtica dioica* L., and *Veronica persica* Poir. A similar ruderal-segetal floristic composition was noticed at the locality of *P. acinosa* in Tarnów by Wyrzykiewicz-Raszewska (2009). It should be pointed out that in Kraków *P. acinosa* most likely escaped from the family allotment gardens located on the outskirts of the Stanisław Wyspiański Park. Interestingly, in many cities of Belgium, *P. acinosa* occurs in gardens, parks (under trees and shrubs), cemeteries, and wasteland as an urban weed (Verloove 2010). Moreover, it was recorded from ruderal places in Sofia, Bulgaria (Zieliński *et al.* 2012), and from a landfill and green area in the city of Varaždin, Croatia (Martan & Šoštarić 2016).

To clarify the current status of *P. acinosa* in the Polish flora, the second author of this paper visited the locality in Tarnów (Wyrzykiewicz-Raszewska 2009), on 5 October 2018. However, despite intensive efforts, the persistence of the plant has not been confirmed there. It is possible that the population of *P. acinosa* in Tarnów vanished with increasing abundance of *Solidago canadensis* L. Therefore, following Pyšek *et al.* (2004), we recommend to treat *P. acinosa* as a casual alien species in Poland. Finally, it is worth mentioning that the casual occurrence of the closely related species *P. americana* L. was also documented in Poland (Chmura 2016) and the persistence of both species needs to be monitored.

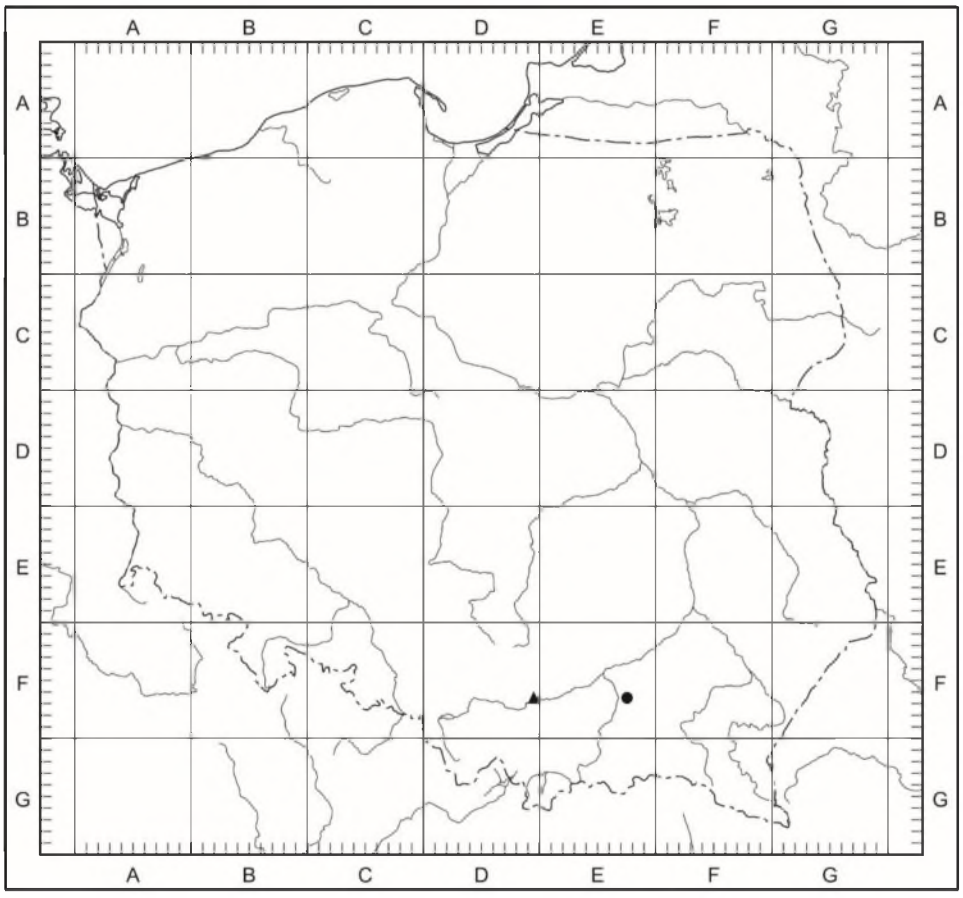

Fig 1: Distribution of *Phytolacca acinosa* in Poland (● – known locality, after Wyrzykiewicz-Raszewska (2009); ▲ – new locality).

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